

POSITION ESTIMATION AND DEMAGNETIZATION  
DETECTION OF A PERMANENT MAGNET MOTOR

ABSTRACT OF THE DISCLOSURE

A feedback response signal in a motor drive system in response to injection of a high frequency carrier signal provides information for determining motor position and demagnetization detection. The high frequency carrier signal excitation can be voltage or current based. The feed back signal is processed with various filtering techniques and phase detection to obtain the desired information. Both uniform and localized demagnetization of the motor is detected by examining the saturation saliency of the stator iron for a lack of position dependent information or large DC offsets. The technique provides good position information for the motor while providing an indication of motor health.